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Claims 1 through 16, 19 through 22 and 25 are pending in the application. Applicant has amended claims 1 and 9 to more particularly point out and distinctly claim the subject matter which applicant regards as the invention. No new matter is introduced by the amendments to the claims.

DOUBLE PATENTING

The examiner has rejected claims 16 and 21 under 35 USC 101 as claiming the same invention as that of claims 1 and 2 of U.S. patent 6,198, 025 on the basis of statutory double patenting.

Applicant has amended claims 16 and 21 to include the limitations of claims 17 and 18 in amended claim 16 and claims 23 and 24 in amended claim 21 to differentiate claims 16 and 21 from claims 1 and 2 of the prior patent.

Applicant respectfully submits the rejection should be withdrawn.

THE EXAMINER'S REJECTIONS BASED ON 35 USC § 101

The examiner has rejected claims 1 through 15, 19 through 20, 22 and 25 under 35 USC 101 because he believes the claimed invention is not supported by a specific asserted utility, a credible asserted utility or a well established utility. The examiner position is that based on the figures in the application, the results are not convincing.

Applicant respectfully notes that the figures in the application are photographs of assays illustrating the results of testing, i.e. western blot, southern blot and electrophoresis, as permitted by 37 CFR § 1.84. These assays can be maintained for a limited time due to their composition. Hence, photographs are the only way to illustrate the actual results, rather than preparing formal tables or sketches illustrating the results obtained. The applicant attaches figures 1, 5 and 6 from related US patent 6,198,025 illustrating the same amino assays in the belief the examiner will appreciate the difficulty in preparing an application using photographs of assays and the limitations of quality this type of figure represents. Applicant believes preparing tables or sketch drawings to replace photographs of actual results of amino assays will make the figures ineffective.

The examiner further states a credible assertive utility is not established because the facts upon which the assertion is based are inconsistent with current scientific dogma. The examiner asserts, based upon the recited scientific articles that the microinjection method used in the application is not viable.

Applicant appreciates the work of Hanson but believes the article does no more than outline techniques developed in the transformation of plants. The examiner does not point to any specific passages which would eliminate the viability of the microinjection process in the present invention.

The Songstad article discusses the difficulty of microinjection of plant cells based upon their structure, specifically the surrounding toxic compounds which may be detrimental to the cell. Applicant submits the comments in Songstad are general comments concerning the structure and problems encountered in working with the nucleus of a plant cell. The Songstad article does not state or imply the use of microinjection of a plant cell is impossible. Further, the Songstad article does not discuss the particular strain of corn being used in this invention. Applicant submits that based on the results found, as illustrated in figures 1 through 6, the microinjection process used in the present application must be viable. Applicant respectfully submits that if the microinjection process was not viable it would have destroyed the cell thereby terminating the process to yield the protein at that microinjection point of the process.

The examiner states there a number of inconsistencies which bring into question the credibility of the asserted utility. The examiner states the specification discloses that total poly A was injected into the corn kernels but that only the soy globulins protein was present in all protein gels analyzed.

Applicant submits there is no requirement in patent law for the inventor to expressly understand how plant produces the protein. On page 6, line 19 of the specification, the applicant states "it appears that the soy mRNA has been reversed transcribed and incorporated into the corn genome." Applicant submits no further explanation as to how the protein was produced by the plant is necessary.

The examiners comments regarding the method in the application are in error. The examiner states, on page 6 of the Official Action, that only 134 corn kernels were initially treated with the mRNA. However, on page 14 line 6 the specification states "the corn kernels of one ear of corn constituted one sample. A total of 134 samples were analyzed from the mRNA-treated group and 10 from the control." Applicant submits that it is not 134 corn kernels but 134 ears of corn times the number of corn kernels on each ear of corn. Applicant submits in view of these comments the specified utility for the invention is supported in the specification.

Applicant submits the rejection under 35 USC 101 should be withdrawn.

THE EXAMINER'S REJECTIONS BASED ON 35 USC 112, FIRST PARAGRAPH

The examiner has rejected claims 1 through 15, 19 through 20 and 25 as being rejected under 35 USC § 112, first paragraph, asserting that the claimed invention is not supported by either a credible asserted utility or a well established utility for the reasons set forth in the Official Action in regard to the rejection of the claims under 35 USC 101. The examiner opines that one skilled in the art clearly would not know how to use the claimed invention.

The applicant respectfully submits that, based upon the comments set forth in this response, one of ordinary skill in the art would know how to use the invention and obtain the same results as illustrated in the application.

The examiner has rejected claims 1 through 15, 19 through 20 and 25 under 35 USC § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The applicant respectfully submits based on the comments in regard to the rejection of the claims under 35 USC 101 and the specification, particularly the examples, any person skilled in the art would clearly be able to make and/or use the invention.

Claims 1 through 15, 19 through 29 and 25 are rejected by the examiner based on his belief that it would require undue experimentation by one skilled in the art to practice the claimed invention.

The applicant respectfully submits that not only does the specification alone contain information which would allow one of skill in the art to make and use the invention but moreover, it contains an example wherein the method is performed in a step by step basis. Further, the results of the method are not illustrated by a drawing but are illustrated by photographs of the actual assays completed using the protein obtained from the example.

Claims 11 through 15, 17 though 20 and 22 through 25 are rejected under 35 USC 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected to make and use the invention.

Applicant respectfully submits the protein obtained by the present invention is obtainable by the repeatable method set forth in the specification and in particular the example therein. As previously stated, figures 1 through 6 are not schematic drawings of the assays, but are actual photographs of the completed assays using the "microbes" used by the present invention. Applicant submits there is no need for a biological deposit of the protein when it can be

obtained by any person of ordinary skill in the art using the method recited in the specification and claims.

Applicant submits the rejections based on 35 USC 112, first paragraph, should be withdrawn.

THE EXAMINERS REJECTIONS BASED ON 35 USC 2nd PARAGRAPH

Claims 1, 5, 6 and 8 through 9, and all subsequent dependent claims have been rejected by the examiner under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant has amended claims 1 and 9 to delete the word beneficial. Further, the applicant submits the sample is defined in the claims and in the specification. Applicant respectfully submits the sample is defined and can be appreciated by those skilled in the art.

Applicant does not understand any antecedent basis problem in claims 5 or 6. The claims further limit the independent claim (claim 1) by the introduction of the elements the examiner believes causes the antecedent basis problem.

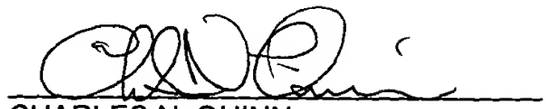
Applicant submits claim 8 is defined correctly, as sprouts as recited in the specification.

Applicant respectfully submits the rejections based on 35 USC 112, second paragraph, should be withdrawn.

CONCLUSION

It is now believed that all of the claims in this application, as amended, are allowable and the present invention is an advance over the prior art. The amendments to the claims are fully supported by the application as filed, and no new matter is being introduced. Therefore, applicant submits that the rejections have been overcome; the application should thus proceed to allowance and issue.

Respectfully submitted,



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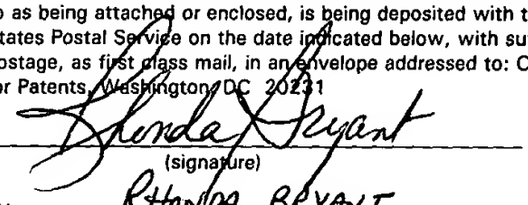

(signature)

BY: RHONDA BRYANT

DATE: 23 SEPTEMBER 2002

Attachment A

1. (Amended) A method for producing transgenic plants which express exogenous proteins, comprising:

   a. obtaining a sample of mRNA encoding said exogenous protein;

   b. incubating seed of said plant with said mRNA under conditions whereby said mRNA enters said seed;

   c. germinating said seed; and

   d. growing said transgenic plant from said seed.

9. (Amended) A transgenic plant expressing exogenous proteins, produced by a method comprising:

   a. obtaining a sample of mRNA encoding said exogenous protein;

   b. incubating seed of said plant with said mRNA under conditions whereby said mRNA enters said seed;

   c. germinating said seed; and

   d. growing said transgenic plant from said seed.

16. (Amended) A transgenic corn plant expressing soy globulin protein, wherein said corn is strain 27-1, wherein said corn is strain 85089.

21. (Amended) Transgenic corn kernels expressing soy globulin protein, wherein said corn is strain 27-1, wherein said corn is strain 85089.

Attachment B

1. (Amended) A method for producing transgenic plants which express [beneficial] exogenous proteins, comprising:

   a. obtaining a sample of mRNA encoding said exogenous protein;

   b. incubating seed of said plant with said mRNA under conditions whereby said mRNA enters said seed;

   c. germinating said seed; and

   d. growing said transgenic plant from said seed.

9. (Amended) A transgenic plant expressing [beneficial] exogenous proteins, produced by a method comprising:

   a. obtaining a sample of mRNA encoding said exogenous protein;

   b. incubating seed of said plant with said mRNA under conditions whereby said mRNA enters said seed;

   c. germinating said seed; and

   d. growing said transgenic plant from said seed.

16. (Amended) A transgenic corn plant expressing soy globulin protein, wherein said corn is strain 27-1, wherein said corn is strain 85089.

21. (Amended) Transgenic corn kernels expressing soy globulin protein, wherein said corn is strain 27-1, wherein said corn is strain 85089.

1. A method for producing transgenic plants which express beneficial exogenous proteins, comprising:
   a. obtaining a sample of mRNA encoding said exogenous protein;
   b. incubating seed of said plant with said mRNA under conditions whereby said mRNA enters said seed;
   c. germinating said seed; and
   d. growing said transgenic plant from said seed.
2. A method as claimed in claim 1, wherein said exogenous protein is soy globulin.
3. A method as claimed in claim 1, wherein said mRNA encodes soy globulin.
4. A method as claimed in claim 1, wherein said seed is corn seed.
5. A method as claimed in claim 1, wherein said exogenous protein is detected with methods selected from the group consisting of Western blotting, double agar immunodiffusion, and Sodium dodecyl sulfate polyacrylamide gel electrophoresis.
6. A method as claimed in claim 1, wherein said mRNA is introduced into said seeds by microinjection.
7. A method as claimed in claim 1, wherein said mRNA is isolated from soy cotyledon.
8. A method as claimed in claim 1, wherein said mRNA is isolated from soy sprouts.

9. A transgenic plant expressing beneficial exogenous proteins, produced by a method comprising:

   a. obtaining a sample of mRNA encoding said exogenous protein;

   b. incubating seed of said plant with said mRNA under conditions whereby said mRNA enters said seed;

   c. germinating said seed; and

   d. growing said transgenic plant from said seed.

10. A method of producing transgenic corn plants expressing soy globulin, comprising:

   a. obtaining soy globulin encoding mRNA;

   b. incubating corn seed with said mRNA under conditions whereby said mRNA enters said corn seed;

   c. germinating said corn seed treated as in step b;

   d. growing a plant from said germinated seed; and

   e. detecting said soy globulin in said transgenic corn plant.

11. A method for producing transgenic corn plants expressing soy globulin protein, comprising:

   a. obtaining seed from corn strain 27-1 and imbibing said seed in double distilled water for at least 48 hours;

   b. isolating and purifying soy globulin mRNA from soy cotyledon;

   c. microinjecting 1µg/µl of said purified mRNA into said seed;

   d. germinating said seed; and

e. growing transgenic corn plants from said seed, said transgenic plant producing said soy globulin protein.

12. A method for producing transgenic corn plants expressing soy globulin protein, comprising:

a. obtaining seed from corn strain 85089 and imbibing said seed in double distilled water for at least 48 hours;

b. isolating and purifying soy globulin mRNA from soy cotyledon;

c. microinjecting 1µg/µl of said purified mRNA into said seed;

d. germinating said seed; and

e. growing transgenic corn plants from said seed, said transgenic plant producing said soy globulin protein.

13. A method for producing transgenic corn plants expressing soy globulin protein, comprising:

a. obtaining seed from corn strain 27-1 and imbibing said seed in double distilled water for at least 48 hours;

b. isolating and purifying soy globulin mRNA from soy sprout;

c. microinjecting 1µg/µl of said purified mRNA into said seed;

d. germinating said seed; and

e. growing transgenic corn plants from said seed, said transgenic plant producing said soy globulin protein.

14. A method for producing transgenic corn plants expressing soy globulin protein, comprising:

a. obtaining seed from corn strain 85089 and imbibing said seed in double distilled water for at least 48 hours;

b. isolating and purifying soy globulin mRNA from soy sprout;

c. microinjecting 1µg/µl of said purified mRNA into said seed;

d. germinating said seed; and

e. growing transgenic corn plants from said seed, said transgenic plant producing said soy globulin protein.

15. A transgenic corn plant expressing soy globulin protein, produced by a method comprising:

a. obtaining seed from corn strain 27-1 and imbibing said seed in double distilled water for at least 48 hours;

b. isolating and purifying soy globulin mRNA from soy sprout;

c. microinjecting 1µg/µl of said purified mRNA into said seed;

d. germinating said seed; and

e. growing transgenic corn plants from said seed, said transgenic plant producing said soy globulin protein.

16. (Amended) A transgenic corn plant expressing soy globulin protein, wherein said corn is strain 27-1, wherein said corn is strain 85089.

19. The transgenic plant of claim 9 in which said seed is corn strain 27-1.

20. The transgenic plant of claim 9 in which said seed is corn strain 85089.

21. (Amended) Transgenic corn kernels expressing soy globulin protein, wherein said corn is strain 27-1, wherein said corn is strain 85089.

22. Kernels from a transgenic corn plant expressing soy globulin protein, produced by a method comprising:

a. obtaining seed from corn strain 27-1 and imbibing said seed in double distilled water for at least 48 hours;

b. isolating and purifying soy globulin mRNA from soy sprout;

c. microinjecting 1µg/µl of said purified mRNA into said seed;

d. germinating said seed;

e. growing transgenic corn plants from said seed, said transgenic plant producing said soy globulin protein; and

f. harvesting said kernels from said transgenic corn plants expressing soy globulin protein.

25. Kernels expressing soy globulin protein from a transgenic corn plant produced by a method comprising:

a. obtaining seed from corn strain 27-1 and imbibing said seed in double distilled water for at least 48 hours;

b. isolating and purifying soy globulin mRNA from soy sprout;

c. microinjecting 1µg/µl of said purified mRNA into said seed;

d. germinating said seed;

e. growing transgenic corn plants from said seed, said transgenic plant producing said soy globulin protein; and

f. harvesting said kernels from said transgenic corn plants.